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AWS outage: Proof the internet's original design has been completely gutted.

General Discussion

TL;DR: The internet was designed in the 1980s to be decentralized so no single failure could break it. Over the past 20 years, AWS, Microsoft, Google, and Cloudflare centralized everything for profit.

Now when one of them fails, thousands of services go down.

Yesterday's 15-hour AWS outage isn't a bug, it's the system working exactly as corporate consolidation designed it.

So yesterday's 15-hour AWS outage took down over 1,000 services globally. Reddit, Slack, Snapchat, even parts of Delta and healthcare systems. [1]

Everyone's talking about the technical details, but nobody's asking the obvious question: how the hell does a DNS issue in one region of one company take down half the internet? I went down a rabbit hole reading the original DNS specifications from the 1980s, and holy shit, we've completely abandoned everything the internet was designed to do.

What the internet was supposed to be.

When DNS was created in 1983, the engineers who built it knew that centralization = single point of failure.

So they wrote it into the actual spec (RFC 1034) that every domain MUST have at least two name servers, and those servers should be in different organizations and different locations. [2] The spec literally says "approaches that attempt to collect a consistent copy of the entire database will become more and more expensive and difficult, and hence should be avoided." [2] They designed the internet to survive nuclear war. No single company or server could bring it down.

What actually happened?

Then AWS launched in 2006, and the economics were too good to resist. Why pay for your own servers when you can rent them for pennies? Microsoft and Google followed. By 2020, COVID hit and everyone panic-migrated to the cloud. [3] Now three companies - Amazon, Microsoft, and Google - control most of the internet's infrastructure. Cloudflare controls another huge chunk of DNS and CDN for like 20% of all websites. [4] Here's the thing everyone misses: when AWS says they have "redundant servers in multiple availability zones," that's technically true. But it's all the same company. Same control systems. Same software. Same management. When something breaks, it ALL breaks.

The proof is in the outages. This keeps happening:

June 2019: BGP routing error takes down Cloudflare, which takes down Amazon, Google, Facebook, Discord [4]

July 2020: Cloudflare routing config error kills Shopify, Discord, League of Legends [4]

June 2022: Cloudflare code bug causes 2-hour global outage [4]



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why this happened?

Follow the money. It's way cheaper to put everything in AWS than to run your own distributed infrastructure like the RFCs required. Cloud providers have zero incentive to actually implement organizational separation because that would mean sending customers to competitors. The original internet protocols are still solid. DNS and BGP work fine when implemented correctly. But we've spent 20 years centralizing everything into corporate silos because it's more profitable. The engineers who built the internet designed it to be indestructible. Capitalism turned it into something that can't survive a software bug.

What now?

Organizations could go back to multi-provider DNS like the spec requires. They could actually implement multi-cloud with real separation. Governments could mandate resilience standards. But that costs more money than just putting everything in AWS and hoping it doesn't break. So we'll probably keep having these outages until something catastrophic happens and forces change. Fun times.

Full Citations[1] CRN. (2025). "AWS' 15-Hour Outage: 5 Big AI, DNS, EC2 And Data Center Keys To Know." <https://www.crn.com/news/cloud/2025/aws-15-hour-outage-5-big-ai-dns-ec2-and-data-center-keys-to-know>[2] Mockapetris, P. (1987). "RFC 1034: Domain Names - Concepts and Facilities." Internet Engineering Task Force. <https://datatracker.ietf.org/doc/html/rfc1034>[3] Wikipedia Contributors. (2025). "Timeline of Amazon Web Services." https://en.wikipedia.org/wiki/Timeline_of_Amazon_Web_Services[4] Control D. (2025). "Cloudflare Outage History (2019-2025)." <https://controld.com/blog/biggest-cloudflare-outages/>

Part II

Internet Architecture: Engineering solutions being undermined by economic optimization.

AI was used to format and research, this is original work.

Internet Architecture: Engineering solutions being undermined by economic optimization.

The architects got it right the first time.

Reading RFC 1034 from 1987, I was struck by how clearly Paul Mockapetris and his colleagues understood the failure modes of centralized systems. They didn't just recommend distribution, and they mandated it, because they knew what would happen if they didn't. And they were right.

The abandonment was deliberate, not accidental. This wasn't a case of "we didn't know better" or "technology evolved."

The specifications still exist. They're still valid. They were simply ignored because following them was more expensive and less convenient than consolidation. Every company that moved to single-provider infrastructure made a conscious choice to trade resilience for cost savings.

The Historical Arc

What Was (1983-2005):



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An oligopoly where three corporations control the majority of internet infrastructure. Clean, cheap, efficient - and fragile. The October 2025 outage is not an anomaly; it's the system working as designed. When you centralize, you get centralized failures.

What's Coming:

This is the concerning part. I foresee three possible futures:

Status quo continues -

More outages, each slightly worse, but never quite catastrophic enough to force change. Organizations accept this as "the cost of doing business." The frog boils slowly.

Catastrophic failure forces change:

A truly devastating outage (healthcare systems down during a crisis, financial system collapse, critical infrastructure failure) creates political will for regulation and mandated resilience. Change comes reactively, after significant harm.

Gradual awakening :

This post and others like it create enough awareness that organizations begin voluntarily returning to multi-provider architectures.

This seems least likely given economic incentives, but it's possible.

The Deeper Pattern

What fascinates me is that this is a microcosm of a larger pattern:

Engineering solutions being undermined by economic optimization.

The engineers who built the internet understood systems theory, failure modes, and resilience. They built something remarkable. Then MBAs and finance people optimized for quarterly earnings, and we lost the resilience in exchange for efficiency.

This happens everywhere:

Boeing's 737 MAX (safety engineering undermined by cost optimization), the Texas power grid (resilience sacrificed for deregulated markets), supply chain fragility (just-in-time efficiency eliminating redundancy).

Concern:

The internet's architects designed it to survive nuclear war.

We've turned it into something that can't survive a software bug. And most people don't understand this



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The work here documents the problem clearly enough that when that crisis comes, there will be no excuse for claiming "nobody could have predicted this."

We, the engineers and designers, devops, sysadmins and architects, we predicted it. The original RFC authors predicted it in 1987.

The evidence is overwhelming.

What do you think will happen next?

Edit: Part II

Follow-up:

How nonprofit internet governance was replaced by corporate control - a timeline

After posting about the AWS outage, a lot of people asked "who was supposed to be managing this?" and "how did we get here?"

So I dug into the history of internet governance organizations, to refresh my memory and find more that I did not previously know.

I've been a sysadmin since 1996, i've watched this happen and now putting it together in a single timeline of events, what I found is even more damning than I thought.

The internet wasn't just designed to be decentralized - it was governed by nonprofits specifically created to maintain that decentralization.

Here's how that got dismantled.

The Original Nonprofit Governance Model (1972-1998)

- 1972:

IANA created: Internet Assigned Numbers Authority establishedRun by Jon Postel at USC (university, not corporation)Managed DNS root zone, IP addresses, protocol parameters

Operated as public service, not for profit

- 1986: IETF establishedInternet Engineering Task Force created as open standards body Anyone could participate in developing internet protocols

Published BGP and routing standards (RFC 4271)No corporate control - consensus-driven process

- 1992: First Regional Internet Registry (RIPE NCC) Nonprofit created to manage IP addresses for Europe



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1993-2005: Other RIRs established

- APNIC (Asia-Pacific, 1993)
- ARIN (North America, 1997)
- LACNIC (Latin America, 2002)
- AFRINIC (Africa, 2005)

All nonprofits, all regionally distributed

This was the model: distributed nonprofits, open standards, no corporate control.

The Transition Period (1998-2016)

- 1998: ICANN createdUS Government White Paper calls for privatization

Internet Corporation for Assigned Names and Numbers formed.

Nonprofit takes over IANA functions from USC.

Still nonprofit, but now US-based corporation with government oversight

This was supposed to be the "privatization" of internet governance. But it was still nonprofit, still mission-driven, still under policy constraints.

- 2006: AWS launches

Here's where it gets interesting:

While ICANN/IANA managed the policy layer (who gets domain names, IP addresses)AWS started taking over the operational layer (who actually runs the infrastructure)

Companies stopped running their own DNS servers and Started using Route 53 (AWS managed DNS)

- 2009: Cloudflare foundedOffers "free" DNS and CDN services

Millions of domains move DNS hosting to Cloudflare

Operational control consolidates to for-profit corporation

Policy still with ICANN/IANA, but actual infrastructure now corporate

- 2016: IANA transition

US Government finally releases oversight of IANA



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By 2016, the policy organizations (ICANN, IANA, RIRs) still technically managed internet governance. They decided who gets domain names and IP addresses. But the actual infrastructure, the servers, the DNS resolution, the routing, had already been taken over by for-profit corporations.

The split:

Policy layer (still nonprofit):

ICANN/IANA: decides domain name policy RIRs: allocate IP address blocks IETF: publishes protocol standards

Operational layer (now corporate):

AWS Route 53: actually runs DNS for millions of domains Cloudflare: runs DNS and CDN for 20% of websites
AWS/Azure/Google: run the actual servers and infrastructure Corporate ISPs: run the BGP routing (remember the 2019 Verizon incident?)

What Actually Happened

- The nonprofits still "govern" the internet in theory.
- ICANN still manages the root zone.
- The RIRs still allocate IP addresses.
- The IETF still publishes standards.

But none of that matters when:

- AWS controls the actual DNS servers for millions of domains
- Cloudflare controls the CDN and edge infrastructure
- Three corporations run most of the actual compute and storage
- Corporate ISPs control the routing without following IETF best practices

The governance organizations maintained their policy authority while losing operational control.

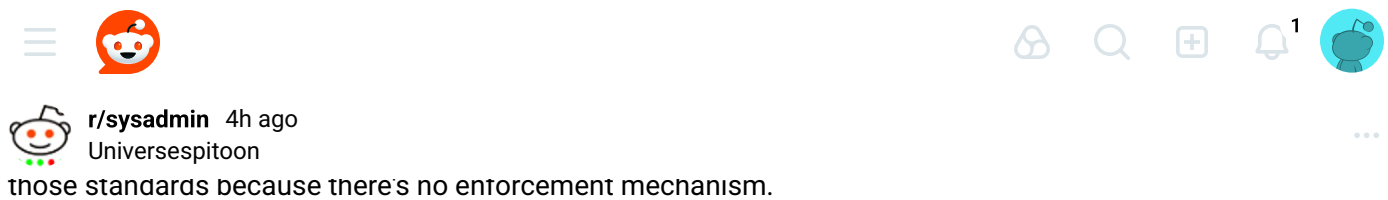
It's like if the Department of Transportation still wrote traffic laws, but all the roads were privately owned by three companies who could close them whenever they wanted.

The Abrogation of Responsibility

Here's what really bothers me:

The nonprofit governance organizations didn't fight this. They maintained their narrow policy mandates while the entire operational internet was consolidated under corporate control.

ICANN still manages domain name policy. But when AWS goes down, ICANN has zero authority or ability to do anything about it.



The responsibility was abrogated through inaction. The nonprofits kept their policy roles and pretended that was enough.

Meanwhile, the actual internet - the operational infrastructure that matters was handed over to for-profit corporations with zero accountability to internet governance principles.

What This Means

We now have two parallel systems:

Governance layer: Nonprofits, distributed, following original principles, largely irrelevant to daily operations

Operational layer: For-profit corporations, centralized, ignoring original principles, controlling everything that actually matters

When AWS goes down, ICANN can't do anything about it. When Cloudflare has a routing error, the IETF can't enforce their standards. When three corporations control most of the infrastructure, the distributed governance model is meaningless.

The internet's governance structure still exists. It's just been made irrelevant by corporate consolidation of the actual infrastructure.

The Timeline Summary

- 1972-2005: Nonprofits build and govern distributed internet
- 1998: ICANN created, still nonprofit but more corporate structure
- 2006-2009: AWS and Cloudflare launch, start taking operational control
- 2010-2020: Mass migration to cloud, operational control fully consolidated
- 2016: IANA transition - policy authority "privatized" to nonprofits
- 2025: Policy still with nonprofits, operations entirely corporate

We privatized the policy while corporatizing the infrastructure.

And we pretended that was the same thing.

Sources:

Internet Society IANA Timeline: <https://www.internetsociety.org/ianatimeline/>

ICANN History: <https://www.icann.org/history> RIR History: <https://www.nro.net/about/rirs/the-internet-registry-system/rir-history/>

Timeline of AWS: https://en.wikipedia.org/wiki/Timeline_of_Amazon_Web_Services



1



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djump42 • 4h ago

Every time i go down the rabbit-hole of high availability, i end up with the requirement of 2 earths.
Preferably one in another solar system.



Arudinne • 4h ago
IT Infrastructure Manager 🏆 Top 1% Commenter

You still have both of your earths in the same Universe. What if something happens to the universe?

BrainWaveCC • 3h ago
Jack of All Trades

Hey, now... Distributed MultiVerse Architecture is not that new..

11 more replies

Stlaid • 3h ago

I somehow suspect that the number of customers that are gonna call in on an SLA breach will approach zero in that case....

9 more replies

14 more replies



BunsenHooneydew • 4h ago

Where's Pied Piper when you need it

funktopus • 4h ago



1



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Middle out.



TurtleStepper • 3h ago

How long would it take you to jerk off everyone in this thread?



1 more reply



tomny79 • 4h ago

Not hot dog



Level-History7 • 3h ago

JIN YIAAAAANG



1 more reply



5 more replies



7 more replies

Zedilt • 4h ago

Counter argument:

The internet didn't break, some services that use the internet are just badly designed.



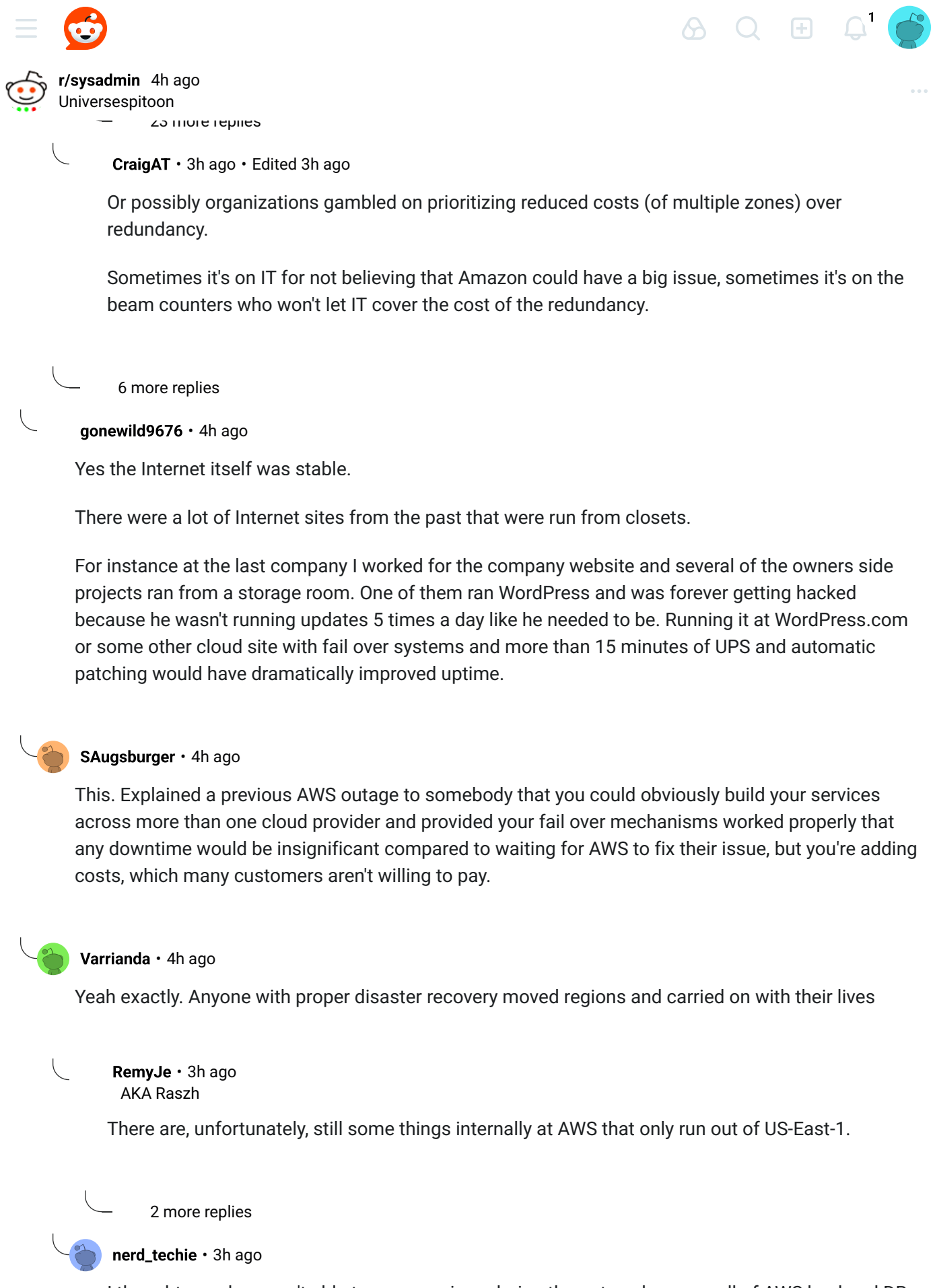
Sinister_Crayon • 4h ago

Literally my first thought. The Internet worked fine throughout the entire outage. Applications failed due to their shitty architecture.



InformedTriangle • 4h ago

Yup, I work for a smaller company (subjectively, several million unique monthly app users) and while we're primarily GCP we have a synced up failover copy of our entire kubernetes cluster at amazon. It takes us 5 minutes to manually failover, or there are automatics then it's just down to DNS propagation.. While a cloudflare situation that takes out both AWS and GCP still takes us out, just AWS or just GCP having issues has little to no effect.





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1 more reply

50 more replies



Pitiful_Option_108 • 4h ago

There is a difference between services going down and the actual Internet going down. The internet itself was fine. Various services tied to AWS went down. I understand what you are trying to get at but that is where you need to make a distinction. Because if the actual Internet went down the entire world would have been inactive for a good minute which is a hell no. But just service and good tied to AWS went down which is still bad but completely different.

3 more replies



WhosYoPokeDaddy • 4h ago

Maybe those weirdos over at [r/selfhosted](#) are onto something!

oldgreymere • 3h ago

Yeah except when my truenas locks up for some unknown reason and then I need to spend my night troubleshooting it instead of sitting on the couch.

7 more replies

4 more replies



therealbeej • 4h ago

Dave's Garage on YouTube had a pretty good video about it. Seems like a lot of the problem was people who relied on, and built their redundancy on just one region of AWS, or who had critical pieces located on east1 without the ability to transfer to a different region.

One of our clients has a program that runs on AWS, and they were not down yesterday. Seems like that vendor built their platform on AWS correctly.

25 more replies



banduraj • 4h ago

> Follow the money. It's way cheaper to put everything in AWS than to run your own distributed